A. Recall that the scenarios are, first, a baseline scenario and the two other scenarios which represent changes from the baseline: changing the collection date for spot price data and changing the interval between the month when forward market trading data is observed and the first subsequent month for which the forward prices are estimated.

The results are similar for the first and third scenarios: the multilplicative basis adjustment does "best" in comparison with the other three ways to calculate the basis adjustments. In addition, its (absolute overall average) percent error is below 4%. The second "best" is the additive basis adjustment, and it has an (absolute overall average) percent error about 1.5% greater than the multiplicative basis adjustment. These two ways to calculate basis adjustments produce percent errors with comparable ranges from, or distance from, high to low of about 25%.

The second scenario has only 3 combinations of transaction months and market pairs affected by the scenario (compared to the baseline scenario). There are no changes in the other 5 combinations because these other combinations have no forward contracts in the months affected by this scenario. For this subset of 3 combinations, the results favor the additive basis adjustment.

Q. What are the result for each scenario?

A. Under the first scenario, the multiplicative basis adjustment has the "best" or lowest (absolute overall average) percent error of 3.57%; the additive basis adjustment has the second lowest (absolute overall average) percent error of 4.94%; the regression basis adjustment with a seasonal variable has the third lowest (absolute overall average) percent error of 9.89%; and the regression basis adjustment without the seasonal variable has the "worst" or highest (absolute overall average) percent error of 11.14%.

Under the second scenario, the multiplicative basis adjustment still has the "best" or lowest percent error, followed in the same order as in the first scenario, by the additive basis adjustments, regression basis adjustments with a seasonal variable, and regression basis adjustment without the seasonal variable: 3.37%, 4.78%, 6.36%, and 9.75%, respectively.

However, when considering the only three of the eight combinations of *transaction months and pairs of markets affected* by the second scenario (compared to the baseline scenario), the percent errors indicate a "best" basis adjustment other than the multiplicative basis adjustment. For these three combinations, the (absolute average) percent error of the additive basis adjustment is "best" or lowest at 9.78%. For the multiplicative basis adjustment, it is 9.86%. and for the regression basis adjustment is 15.89%. (The regression basis adjustment with a seasonal variable has changes, compared to the baseline scenario, in all 8 combinations.)

Under the third scenario, the same order as the first scenario holds among the basis adjustments, with the multiplicative basis as the "best" or lowest percent error, followed by the additive, regression with seasonal variable, and regression without the seasonal variable: 3.07%, 4.75%, 9.81%, and 10.00%.

Q. Are there results for the eastern markets that include into-Cinergy?

A. Yes. What is notable is that, for the two eastern market pairs (into-Entergy/into-Cinergy and into-TVA/into-Cinergy) under the first and third scenarios, the multiplicative basis adjustments are about 4% to 5% lower than those for the western market pairs (Mid-Columbia/COB and Palo Verde/COB). On the other hand, the additive basis adjustment produces average percent errors in the eastern markets that are about 1% to 2% higher than those in the western markets.

Since both Ameren and Illinois Power are using the into-Cinergy markets, the results indicate that the multiplicative basis adjustment is the "best" basis adjustment for them to use.

Q. Does moving the collection date for spot on-peak prices closer to the transaction month improve the effectiveness of the different type of basis adjustments?

A. The results are inconclusive. For each of the four ways of calculating basis adjustments, the (absolute overall average) percent are always lower when compared to the baseline scenario. However, in the only three of the eight combinations of transaction months and pairs of markets affected by the scenario (compared to the baseline scenario), the changes are small for the two "best" ways to calculate the basis adjustment. For these three combinations, the (absolute average) percent error of the multiplicative basis adjustment changes from 10.38% under the baseline scenario to 9.86% under this scenario, and for the additive basis adjustment, it falls from 10.21% to 9.78%.

Because of the small size of the changes and the few examples of changes, the results of this scenario can only be suggestive that moving the date of collecting spot price data improves the effectiveness of using these basis adjustments to estimate forward prices.

Q. Does decreasing the three month period (between the transaction month and the first subsequent month for which forward prices are estimated) to one month improve the effectiveness of the different type of basis adjustments?

A. The results are inconclusive. For each of the four ways of calculating basis adjustments, the (absolute overall average) percent errors are always lower when compared to the baseline scenario. However, the changes are small for the two "best" ways to calculate the basis adjustment. The (absolute overall average) percent error of the multiplicative basis adjustment changes from 3.57% under the baseline scenario to 3.07% under this scenario, and for the additive basis adjustment, it falls from 4.94% to 4.75%. Furthermore, in the only 2 combinations of the transaction months and pairs of markets which have a complete 12-month sets of forward prices to examine (the 2 western markets in the transaction month of June 2000), the (absolute average) percent errors are even smaller with the multiplicative and additive basis adjustments, but they increase instead of falling. The (absolute average) percent error of the multiplicative basis adjustment increases from 6.25% under the baseline scenario to 6.29% under this scenario, and for the additive basis adjustment, it increases from 4.26% to 4.39%.

Because of the small size of the changes and the mixed results, the results of this scenario do not suggest that the change under this scenario improves the effectiveness of using these basis adjustments to estimate forward prices.

Q. Did you examine any other ways to estimate forward on-peak prices?

A. I examined how well one can estimate forward prices in one market of my pairs of markets by the prices in the other market, without any adjustment. That is, I assumed the prices in the two forward markets were equal, and then reviewed the percent errors. I called this method the naïve no-adjustment method.

Recall that there are 24 cases in which to examine the effectiveness of the different basis adjustment: two transaction months, four pairs of markets, and three scenarios. The results of these 24 cases and the subset of 12 cases in the eastern markets, which include into-Cinergy, indicate that this naïve method does about as well as using basis adjustment to estimate forward on-peak prices.

The multiplicative basis adjustment has lower (absolute overall average) percent errors, or produces better estimates of forward prices, than the naive method in only 13 of 24 cases examined, and in the eastern markets, the multiplicative basis adjustment has lower percent errors, than the naive method in 7 of 12 cases examined. The additive basis adjustment has lower (absolute overall average) percent errors, or produces better estimates of forward prices, than the naive method in only 14 of 24 cases examined, and in the eastern markets, the additive basis adjustment produces better estimates of forward prices in 9 of 12 cases examined. That is, the no-adjustment method does about as well as a multiplicative basis adjustment to estimate forward prices, but the additive basis adjustment does better than the no-adjustment method.

For the critical summer months of June through September, the multiplicative basis adjustment has lower (absolute overall average) percent errors, or produces better estimates of forward prices, than the naive method in only 12 of 24 cases examined, and the additive basis adjustment has lower (absolute overall average) percent errors, or produces better estimates of forward prices, than the naive method in 15 of 24 cases examined. However, in the eastern markets, both do poorly compared to the naive no-adjustment method. The multiplicative basis adjustment has lower (absolute overall average) percent errors, or produces better estimates of forward prices, in only 3 of 12 cases examined; the additive basis adjustment has lower percent errors in only 4 of 12 cases examined.

Q. Did you also do a direct comparison of the numerical values of the percent errors.

A. Yes. In a direct comparison of the (absolute overall average) percent errors under the baseline scenario, the naive no-adjustment method has lower percent errors, or produces better estimates of forward prices, than either the additive or multiplicative basis adjustments. The naive no-adjustment method has a percent of 3.53% while the additive and multiplicative basis adjustments have percent errors of 4.94% and 3.57%, respectively. However, in the eastern markets, the results are reversed. The naive no-adjustment method has higher percent errors, or produces worse estimates of forward prices, than either the additive or multiplicative basis adjustments. The naive no-adjustment method has a percent of 8.40% while the additive and multiplicative basis adjustments have percent errors of 5.61% and 1.15%, respectively.

In a direct comparison of the (absolute overall average) percent errors under the third scenario, the naive no-adjustment method has lower percent errors, or produces better estimates of forward prices, than the additive basis adjustment but higher percent errors than the multiplicative basis adjustment. The naive no-adjustment method has a percent of 3.65% while the additive and multiplicative basis adjustments have percent errors of 4.75% and 3.07%, respectively. In the eastern markets, the naive no-adjustment method has higher percent errors, or produces worse estimates of forward prices, than either the additive or multiplicative basis adjustments. The naive no-adjustment method has a percent of 8.06% while the additive and multiplicative basis adjustments have percent errors of 5.87% and 1.11%, respectively.

What is notable about these results is that the two "best" ways to estimate forward prices, as determined previously, do not uniformly perform much better than the no-adjustment method to estimate forward prices. In the eastern markets, which include into-Cinergy, they do better than the no-adjustment method. But they seldom do better in the critical summer months.

On balance, these results are inconclusive as to whether one should apply any of the basis adjustments, that I examined, to forward prices in one market in order to estimate the forward prices in another market, where the markets have a close relationship as measured by their correlations in the spot and forward markets.

<u>5.</u> **<u>Recommendations</u>**

Q. Please summarize your principal recommendation?

A. Ameren and Illinois Power propose using basis adjustments applied to monthly into-Cinergy forward on-peak prices in order to estimate monthly forward on-peak prices in Southern or Lower Main, when the basis adjustments are calculated using the spot on-peak prices of both markets. Because the latter forward on-peak prices do not exist, the effectiveness of their proposed basis adjustments cannot be tested directly. However, an indirect test can be performed by reviewing the effectiveness of different basis adjustments calculated from spot on-peak prices of markets for which forward on-peak prices also exist.

The results of the evaluations of the basis adjustments I performed were summarized previously. The results do not support a recommendation to estimate forward on-peak prices using any of the different basis adjustments I examined. However, those results also indicate that the "best" basis adjustment, among those I examined, is a multiplicative basis adjustment applied to monthly into-Cinergy forward on-peak prices. The multiplicative basis adjustment is calculated as the monthly average of daily ratios of spot on-peak prices. If the Commission decides that Ameren should use a basis adjustment among those I examined, then Ameren should use a monthly average of daily ratios of Southern Main and into-

Cinergy spot on-peak prices that multiplies monthly into-Cinergy forward on-peak prices in order to estimate monthly Southern Main forward on-peak prices.

Schedule 2 presents illustrative multiplicative basis adjustments for Ameren calculated from the Power Markets Week database of July 2000. The calculation of the basis adjustment uses Southern Main and into-Cinergy spot prices. Schedule 2 also illustrates a hypothetical effect on estimated Southern Main forward on-peak prices for the period from June 2000 to February 2001. The effect is due to changing Ameren's proposed basis adjustment from an additive basis adjustment to a multiplicative basis adjustment. The truncation of the period from a full 12-month period is due to the lack of data in the Power Markets Week database.

Under the assumption that the Commission decides that ComEd's Market Value Index should also be based, in part, upon into-Cinergy forward on-peak prices, then the results do not support a recommendation to estimate forward on-peak prices using any of the different basis adjustments I examined. However, if the Commission decides that ComEd should use one of them, then ComEd should use a monthly average of daily ratios of into-ComEd and into-Cinergy spot on-peak prices that multiplies monthly into-Cinergy forward on-peak prices in order to estimate monthly into-ComEd forward on-peak prices.

Schedule 2 presents illustrative multiplicative basis adjustments for ComEd calculated from the Power Markets Week database of July 2000.

Illinois Power's proposed basis adjustment already uses a multiplicative basis adjustment applied to monthly into-Cinergy forward on-peak prices.

Q. What other recommendation do you make?

A. In regard to (1) using more recent spot price data to calculate the basis adjustments and (2) using forward contracts closer to the date when forward on-peak prices are estimated, the results of my evaluation to do not demonstrate that these changes make any difference. Therefore, I do not recommend them. However, the Commission should remain open to other evaluations that do demonstrate a difference.

I recommend that Ameren not statistically test its monthly basis adjustments to determine whether they are statistically significant and then using only those that are statistically significant. The testing appears to be unwarranted.

Q. Does this conclude your testimony?

A. Yes.

A. scenario: spot market prices collected in January 2000
and there is a three month period between transaction month and first subsequent month for which forward market prices are estimated

I. Additive Basis Adjustment which a difference between spot prices added to forward prices — the difference calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-1.61%	-0.83%	1.00%	-9.56%	overall average	range
June 2000 transaction month**	-22.12%	2.11%	-8.27%	-0.26%	-4.94%	24.23%
	eastern ave	-5.61%	western ave	-4.27%		
	June overall ave exc for into-TVA/into-cinergy			-10.21%		
	June ave in western markets			-4.26%		

II. Multiplicative Basis Adjustment which is a monthly ratio of spot prices multiplying forward prices — the ratio calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	7.96%	1.57%	-4.67%	-6.78%	overall average	range
June 2000 transaction month**	-18.65%	4.52%	-15.21%	2.70%	-3.57%	26.61%
	eastern ave	-1.15%	western ave	-5.99%		
	June overall ave exc for into-TVA/into-cinergy			-10.38%		
	June ave in western markets			-6.25%		

III. Regression Basis Adjustment — the regression calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-2.02%	-3.33%	-10.07%	-14.33%	overall average	range
June 2000 transaction month**	-29.06%	-0.58%	-16.61%	-13.12%	-11.14%	28.47%
	eastern ave	-8.75%	western ave	-13.53%		
	June overall ave exc for into-TVA/into-cinergy			-19.60%		
	June ave in western markets			-14.87%		

the regression calculated for annual period but with summer seasonal variable

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-5.64%	-1.18%	-4.70%	-13.23%	overall average	range
June 2000 transaction month**	-25.03%	1.71%	-16.03%	-15.02%	-9.89%	26.74%
	eastern ave	-7.54%	western ave	-12.24%		
	June ave in western markets			-15.52%		

* COB = California-Oregon-Border
** transaction month is when forward contracts were traded

B. scenario: spot market prices collected in transaction month (not in prior period)
and there is a three month period between transaction month and first subsequent month for which forward market prices are estimated

I. Additive Basis Adjustment which a difference between spot prices added to forward prices — the difference calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-1.61%	-0.83%	1.00%	-9.56%	overall average	range
June 2000 transaction month**	-21.38%	2.11%	-9.06%	1.11%	-4.78%	23.49%
	eastern ave	-5.43%	western ave	-4.13%		
	June overall ave exc for into-TVA/into-cinergy			-9.78%		

II. Multiplicative Basis Adjustment which is a monthly ratio of spot prices multiplying forward prices — the ratio calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	7.96%	1.57%	-4.67%	-6.78%	overall average	range
June 2000 transaction month**	-17.05%	4.52%	-15.02%	2.50%	-3.37%	25.01%
	eastern ave	-0.75%	western ave	-5.99%		
	June overall ave exc for into-TVA/into-cinergy			-9.86%		

III. Regression Basis Adjustment — the regression calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-2.02%	-3.33%	-10.07%	-14.33%	overall average	range
June 2000 transaction month**	-25.74%	-0.58%	-16.90%	-5.02%	-9.75%	25.16%
	eastern ave	-7.92%	western ave	-11.58%		
	June overall ave exc for into-TVA/into-Cinergy			-15.89%		

the regression calculated for annual period but with summer seasonal variable

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-4.95%	-1.08%	-5.27%	-13.02%	overall average	range
June 2000 transaction month**	-18.42%	1.99%	-11.07%	0.97%	-6.36%	20.41%
	eastern ave	-5.62%	western ave	-7.10%		

* COB = California-Oregon-Border
** transaction month is when forward contracts were traded

means that there is no change in percent error frm the baseline scneario because there are no forward contracts in months affected by the changed collection date

C. scenario: spot market prices collected in January 2000
and there is a one month period between transaction month and first subsequent month for which forward market prices are estimated

I. Additive Basis Adjustment which a difference between spot prices added to forward prices — the difference calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*	overall average	range
March 2000 transaction month**	-7.20%	-0.55%	4.01%	-9.73%		
June 2000 transaction month**	-17.12%	1.41%	-8.97%	0.19%	-4.75%	21.14%
	eastern ave	-5.87%	western ave	-3.63%		
	June ave in western markets			-4.39%		

II. Multiplicative Basis Adjustment which is a monthly ratio of spot prices multiplying forward prices — the ratio calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*	overall average	range
March 2000 transaction month**	0.38%	1.27%	-0.15%	-7.37%		
June 2000 transaction month**	-10.36%	4.26%	-16.00%	3.42%	-3.07%	20.26%
	eastern ave	-1.11%	western ave	-5.03%		
	June ave in western markets			-6.29%		

III. Regression Basis Adjustment — the regression calculated for each month

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*	overall average	range
March 2000 transaction month**	-8.48%	-2.57%	-2.82%	-14.23%		
June 2000 transaction month**	-20.74%	-1.29%	-17.32%	-12.56%	-10.00%	19.45%
	eastern ave	-8.27%	western ave	-11.73%		
	June ave in western markets			-14.94%		

the regression calculated for annual period but with summer seasonal variable

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*	overall average	range
March 2000 transaction month**	-11.14%	-1.50%	-2.56%	-13.84%		
June 2000 transaction month**	-19.53%	1.89%	-16.89%	-14.93%	-9.81%	21.42%
	eastern ave	-7.57%	western ave	-12.05%		
	June ave in western markets			-15.91%		

* COB = California-Oregon-Border
** transaction month is when forward contracts were traded, except into-TVA/into-Cinergy used April 2000 instead of June 2000

A. scenario: spot market prices collected in January 2000
and there is a three month period between transaction month and first subsequent month for which forward market prices are estimated

Naive No-Adjustment Method

Naive No-Adjustment Method

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-5.11%	-2.78%	16.65%	-8.19%	overall average	range
June 2000 transaction month**	-25.79%	0.08%	-2.13%	-1.00%	-3.53%	42.44%
	eastern ave	-8.40%	western ave	1.33%		

C. scenario: spot market prices collected in January 2000
and there is a one month period between transaction month and first subsequent month for which forward market prices are estimated

Naive No-Adjustment Method

Naive No-Adjustment Method

	percent estimation errors					
	into-Entergy/ into-Cinergy	into-TVA into-Cinergy	Mid-Columbia/ COB*	Palo Verde/ COB*		
March 2000 transaction month**	-10.31%	-3.20%	15.64%	-8.97%	overall average	range
June 2000 transaction month**	-19.24%	0.51%	-3.22%	-0.41%	-3.65%	34.88%
	eastern ave	-8.06%	western ave	0.76%		

* COB = California-Oregon-Border
** transaction month is when forward contracts were traded

MONTHLY AVERAGES OF DAILY RATIOS OF ON-PEAK PRICES
CALCULATED WITH DATA FROM THE POWER MARKETS DATABASE OF JULY 2000

Calculation Method: monthly average of daily ratios of spot on-peak prices

Main Southern/Into-Cinergy
matched observations nonblank

Average of daily ratio	month											
year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1999				1.0894	1.0178	0.9946	0.9606	0.9733	0.9702	1.0478	1.0804	1.0500
2000	1.0861	1.0317	1.0885	1.0437	1.0125	0.9479						
							average from June 1999 to May 2000					1.0283

Into-ComEd/Into-Cinergy
matched observations nonblank

Average of daily ratio	month											
year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1997					1.1676	1.0023	0.9660	1.0572	1.0214	1.1244	1.1166	1.1650
1998	1.1896	1.1881	1.1750	1.1580	1.0815	0.9434	0.9686	0.9786	0.9594	1.0219	1.1207	1.0667
1999	1.1179	1.0553	1.0072	1.0279	0.9970	0.9704	1.0616	0.9729	0.9354	1.0307	1.0510	1.0277
2000	1.0361	1.0273	1.0157	0.9916	1.0098	0.9742						
							average from June 1999 to May 2000					1.0109

AN ILLUSTRATION OF THE EFFECT ON ESTIMATED SOUTHERN MAIN FORWARD ON-PEAK PRICES
DUE TO CHANGING AMEREN'S ADDITIVE BASIS ADJUSTMENT TO A MULTIPPLICATIVE BASIS ADJUSTMENT
CALCULATED WITH DATA FROM THE POWER MARKETS DATABASE OF JULY 2000

Case 1	Jun 2000	July 2000	Aug 2000	Sept 2000	Oct 2000	Nov 2000	Dec 2000	Jan 2001	Feb 2001
into-Cinergy forward on-peak prices March 2000 for Applicable Period A	$67.08	$157.72	$157.72	$32.61	$24.84	$24.84	$24.84	$29.20	$29.20
additive basis adjustment	Jun 1999	July 1999	Aug 1999	Sep 1999	Oct 1999	Nov 1999	Dec 1999	Jan 2000	Feb 2000
calculated from Southern Main and into-Cinegy spot prices observed in March 2000 for the prior 12 months	-$2.40	-$22.73	-$5.51	-$0.58	$0.98	$1.40	$1.04	$1.48	$0.67
	Jun 2000	July 2000	Aug 2000	Sept 2000	Oct 2000	Nov 2000	Dec 2000	Jan 2001	Feb 2001
estimated Southern Main forward on-peak price	$64.67	$134.99	$152.21	$32.03	$25.81	$26.24	$25.88	$30.68	$29.87
Case 2	Jun 2000	July 2000	Aug 2000	Sept 2000	Oct 2000	Nov 2000	Dec 2000	Jan 2001	Feb 2001
into-Cinergy forward on-peak prices observed in June 2000	$67.08	$157.72	$157.72	$32.61	$24.84	$24.84	$24.84	$29.20	$29.20
multiplicative basis adjustment	Jun 1999	July 1999	Aug 1999	Sep 1999	Oct 1999	Nov 1999	Dec 1999	Jan 2000	Feb 2000
calculated from Southern Main and into-Cinegy spot prices observed in March 2000 for the prior 12 months	0.9946	0.9606	0.9733	0.9702	1.0478	1.0804	1.0500	1.0861	1.0317
	Jun 2000	July 2000	Aug 2000	Sept 2000	Oct 2000	Nov 2000	Dec 2000	Jan 2001	Feb 2001
estimated Southern Main forward on-peak price	$66.72	$151.50	$153.51	$31.64	$26.02	$26.83	$26.08	$31.72	$30.13

DIFFERENCE OF CASE 1 AND CASE 2
(multiplicative basis adjustment) - (additive basis adjustment)

	Jun 2000	July 2000	Aug 2000	Sept 2000	Oct 2000	Nov 2000	Dec 2000	Jan 2001	Feb 2001
estimated Southern Main forward on-peak price	$2.04	$16.51	$1.30	-$0.39	$0.21	$0.59	$0.20	$1.03	$0.26
							average difference		$2.42

THREE STEPS IN EVALUATING BASIS ADJUSTMENTS: DATA GATHERING FROM THE POWER MARKETS WEEK PRICE INDEX DATABASE IN JULY 2000

1. The first step was to find markets with highly correlated spot on-peak prices, under the assumption that highly correlated spot on-peak prices would mean stable basis adjustments. The cut-off for being highly correlated was 90%. The 30 active spot markets in the Power Markets Week ("PMW") database had 435 cross-correlations, of which 94 were highly correlated. I did not evaluate any basis adjustments based on spot on-peak prices that were less than 90% correlated.

   But note that stability within the spot markets does not necessarily mean that there is a stable relationship between the spot and forward markets. It is the latter stability which is of interest and which is being tested by reviewing the effectiveness of using basis adjustments to estimate on-peak prices in one forward market based on on-peak prices in another forward market.

2. The second step worked with the daily PMW database for forward prices. For simplicity, I called the activity of making or trading a contract for future delivery of electricity, or in the absence of making a trade, the activity of making any bid/ask quotes, a transaction. I called the month of delivery, the contract month. For each transaction day, I estimated the forward on-peak price of electricity to be delivered in the contract month. This was done by averaging of the high contract on-peak price and the low contract

on-peak price, or if there was no traded contract, I averaged the reported bid/ask quotes for on-peak electricity to be delivered in the contract month. Forward off-peak prices were not calculated. For contracts lasting two or three months, each inclusive month was assigned the same contract on-peak price. Any contract lasting more than a quarter was eliminated from the database.

Then I calculated the time interval in months between (1) a transaction month and (2) the delivery month of the contract traded in the transaction month. I called the interval between them, forwardtime. I used the forwardtime intervals to identify contract delivery months in relation to their transaction month.

Finally, for each transaction month I averaged the on-peak prices by forwardtime, or contract month. These averages allowed me to conclude which transaction months had the most activity as measured by the number transaction days per contract month. But since there may be more than one contract entered on a transaction day for a contract month, this measure understates contract activity.

3. The third step was to search the 94 pairs of active spot markets to find pairs that also had active forward markets. I found four pairs: into-Cinergy and into-Entergy; into-Cinergy and into-TVA; California-Oregon-Border (or COB) and Mid-Columbia; and COB and Palo Verde. Each of the four pairs had high correlations of on-peak prices in both the spot and forward markets. (The correlations measure how closely the prices move

together. The highest positive correlation is 1 and represents perfect co-movement in the same direction; and the lowest negative -1 and represents perfect co-movement in the opposite direction. A correlation of zero means that the prices do not move together.) The into-Entergy/into-Cinergy pair had a spot price correlation of .96 and a forward market price correlation of .98. The into-TVA/into-Cinergy had a spot price correlation of .99 and a forward price correlation also of .99. The Mid-Columbia/COB pair had a spot price correlation of .99 and a forward price correlation of .98. The Palo Verde/COB pair had a spot price correlation of .98 and a forward price correlation of .94. The spot on-peak prices in the eastern markets (into-Cinergy, into-Entergy, into-TVA) had almost no correlation with the spot prices in the western markets (COB, Mid-Columbia, Palo Verde), that is, the correlations were almost zero. The forward on-peak prices in the eastern markets (into-Cinergy, into-Entergy, into-TVA) had correlations with the forward on-peak prices in the western markets that ranged from .49 to .84.

With a transaction month of March 2000 and assuming that the basis adjustments are to be made from June 2000 to May 2001, there are 15 possible contract months, counting March 2000 as a contract month. Into-Cinergy had forward on-peak prices in 12 contract months during this period; into-Entergy had 10; into-TVA had 8; COB had 15; Mid-Columbia had 7; and Palo Verde had 10. In order to get more tests of the different basis adjustment methods, I also selected another transaction month, June 2000, assuming that the first month of basis adjustments had the same 3 month gap, so that basis adjustments begin in September 2000 and continue until August 2001. Under this alternative scenario, into-Cinergy had forward on-peak prices in 12 contract months; into-Entergy had 11; COB, Mid-Columbia, and Palo Verde each had 15. Since into-TVA had forward on-peak prices in only 3 contract months in the transaction month of June 2000, for into-TVA I used April 2000, instead of June 2000, as the alternative transaction month, It had 8 contract months with forward on-peak prices in April 2000.

As noted above, I assumed that the basis adjustments are to be applied to an annual period of 12 months which have forward on-peak prices, as per Ameren's Applicable Period A and Illinois Power's rolling 12-month procedure. The number of contract months with on-peak prices in selected paired forward markets is of interest, since the ultimate purpose of selecting transaction months is to test the different basis adjustment methods with the 4 paired forward markets. With the March 2000 transaction month, the into-Cinergy/into-Entergy pair had 7 matched contract months between June 2000 and May 2001; into-Cinergy/into-TVA had 5; COB/Mid-Columbia had 4; and COB/Palo Verde had 7. With the June 2000 transaction month, the into-Cinergy/into-Entergy pair had 6 matched contract months between September 2000 and August 2001; and COB/Mid-Columbia and COB/Palo Verde each had 12. With the April 2000 transaction month, into-Cinergy/into-TVA had 5 matched contract months between July 2000 and June 2001.

There are many spot on-peak prices in the PMW database for these 4 pairs of markets used in the tests. All evaluated basis adjustments were calculated from paired or matched observations in the pair markets. That is, a daily spot on-peak price in one market was used only if there was a spot on-peak price in the other market on the same day. The eastern market pairs of into-Cinergy/into-Entergyand into-Cinergy/into-TVAhad 256 matched pairs of spot on-peak prices for calendar year 1999 while the western markets pairs of COB/Mid-Columbia and COB/Palo Verde each had 307 matched-pairs for calendar year 1999. Under the alternative scenario of changing the annual period covered by the reported spot on-peak prices, there are 258 and 308 matched pairs of spot on-peak prices, respectively.